UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R051XA009NM (WP-1, HV-1,2)

Site Name: Malpais

Precipitation or Climate Zone: 9 to 14 inches

Phase:

PHYSIOGRAPHIC FEATURES

Narrative:

This site is located on nearly level to gently sloping mesas, benches, and alluvial fans. Basalt rock outcrops interspersed with deeper pockets of soil characterized this site. Slopes range from 1 to 15 percent. Elevation ranges from 6,900 to 8,000 feet above sea level.

Land Form:

1. Lava plain
2. Lava flow
3.

Aspect:

1. N/A
2.
3.

	Minimum	Maximum
Elevation (feet)	6,900	8,000
Slope (percent)	1	15
Water Table Depth (inches)	N/A	N/A

Flooding:	**Minimum**	**Maximum**
Frequency	N/A	N/A
Duration	N/A	N/A

Ponding:	**Minimum**	**Maximum**
Depth (inches)	N/A	N/A
Frequency	N/A	N/A
Duration	N/A	N/A

Runoff Class:

Negligible to medium.

CLIMATIC FEATURES

Narrative:

Mean annual precipitation varies from 9 to 14 inches. Deviations of 4 inches or more are quite common. Approximately 60 percent of the precipitation is received during the native plant growth period, April through September. June is the driest month. During July, August and September 4 to 5 inches of precipitation influence the presence and production of warm-season plants. Fall and spring moisture is conducive to the growth of cool-season herbaceous plants. Maximum shrub growth also occurs during this time. Summer precipitation is characterized brief, localized thunderstorms. Winter moisture usually occurs as snow or light rain.

Mean annual temperature varies from 64 degrees F in July to 21 degrees F in January. The maximum is near 100 degrees F. The minimum is near 40 degrees F. The average last killing frost in the spring is around mid-May. The first killing frost in the fall is late September or early October. The frost-free period is approximately 120 to 140 days, but freezing temperatures have been recorded for every month except July and August. Temperatures are generally conducive for herbaceous plant growth from April through September.

Wind velocities are relatively light most of the year with stronger winds occurring in spring and early summer. These stronger winds, which may exceed 25 miles per hour, increase transpiration rates of plants and rapidly dry the soil surface. Also, small soil particles are often displaced by the stronger winds, which can result in structural damage to native plants, particularly young seedlings.

Climate data was obtained from the WCCR web site. Using 50% probabilities for freeze-free and frost-free seasons at 28.5 degrees F and 32.5 degrees F respectively.

	Minimum	**Maximum**
Frost-free period (days):	104	119
Freeze-free period (days):	134	145
Mean annual precipitation (inches):	9	14

Monthly moisture (inches) and temperature (^{0}F) distribution:

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.52	1.79	7.6	45.6
February	.43	1.56	10.7	50.4
March	.67	1.92	16.8	56.8
April	.52	1.26	22.7	66.0
May	.62	1.26	28.8	75.5
June	.49	1.21	35.1	85.8
July	1.54	3.41	42.1	88.9
August	1.86	3.72	41.8	85.8
September	1.08	1.86	34,6	78.8
October	1.01	1.86	25.3	68.8
November	.71	1.60	16.2	56.0
December	.56	1.49	9.3	47.0

Climate Stations:

				Period			
Station ID	292241	Location	Cuba, NM	From:	01/01/14	To:	12/31/01
Station ID	293422	Location	Gallup FAA AP, NM	From:	01/01/21	To:	12/31/01

INFLUENCING WATER FEATURES

Narrative:

This site is not influenced by water from a wetland or stream.

Wetland description:

System	Subsystem	Class
N/A		

If Riverine Wetland System enter Rosgen Stream Type:

N/A

REPRESENTATIVE SOIL FEATURES

Narrative:

The soils are very shallow to shallow with large amounts of bedrock exposed. The surface layers are stony silty clay loam and very stony loam. The subsoils are stony loam, stony silty clay loam, stony clay loam and stony clay. Basalt bedrock is at 10 to 20 inches. Permeability is moderate to slow. Available water-holding capacity is low. Effective rooting depth is 10 to 20 inches, though roots may penetrate fractures in the bedrock.

Parent Material Kind: Volcanic ash
Parent Material Origin: Basalt

Surface Texture:

1. Stony silty clay loam
2. Very stony loam

Surface Texture Modifier:

1. Stone
2.

Subsurface Texture Group: Stony Clay
Surface Fragments <=3" (% Cover): N/A
Surface Fragments >3" (% Cover): 15 to 60

Subsurface Fragments <=3" (%Volume): N/A
Subsurface Fragments >=3" (%Volume): 15 to 60

	Minimum	Maximum
Drainage Class:	Well	Well
Permeability Class:	Slow	Moderate
Depth (inches):	<10	20
Electrical Conductivity (mmhos/cm):	0.00	2.00
Sodium Absorption Ratio:	0.00	1.00
Soil Reaction (1:1 Water):	6.6	7.8
Soil Reaction (0.1M CaCl2):	N/A	N/A
Available Water Capacity (inches):	3	6
Calcium Carbonate Equivalent (percent):	N/A	N/A

PLANT COMMUNITIES

Ecological Dynamics of the Site:

Plant Communities and Transitional Pathways (diagram)

Plant Community Name: Historic Climax Plant Community

Plant Community Sequence Number: 1 **Narrative Label**: HCPC

Plant Community Narrative: Historic Climax Plant Community
The vegetative aspect on this site is a grassland-shrub mixture characterized dominantly by mid-grasses and shrubs. Perennial forbs are a minor component of the potential plant community. Big sagebrush will occur in higher concentrations on the upper slopes of this site often as an understory to invading trees. Annual forbs and grasses occur in abundance during the spring months in years of above-average growing conditions.

*Black grama is restricted to the HV-2 subresource area.

Canopy Cover:	
Trees, shrubs and half-shrubs	8 %
Ground Cover (Aveage Percent of Surface Area).	
Grasses & Forbs	15
Bare ground	10
Surface gravel	10
Surface cobble and stone	50
Litter (percent)	15
Litter (average depth in cm.)	1

Plant Community Annual Production (by plant type):

Annual Production (lbs/ac)

Plant Type	Low	RV	High
Grass/Grasslike	140	245	350
Forb	26	46	65
Tree/Shrub/Vine	40	70	100
Lichen			
Moss			
Microbiotic Crusts			
Total	200	350	500

Plant Community Composition and Group Annual Production: Plant species are grouped by annual production **not** by functional groups.

Plant Type - Grass/Grasslike

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
1	BOGR2	Blue Grama	18 – 35	18 – 35
2	BOCU	Sideoats Grama	18 – 35	18 – 35
3	ELEL5	Bottlebrush Squirreltail	18 – 28	18 – 28
4	PASM	Western Wheatgrass	53 – 70	53 – 70
5	HECO26 HENE5	Needleandthread New Mexico Feathergrass	18 – 35	18 – 36
6	POFE KOMA	Muttongrass Prairie Junegrass	18 – 25	18 – 25
7	SCSC	Little Bluestem	0 – 18	0 – 18
8	PLJA	Galleta	35 – 53	35 – 53
9	BOER4	Black Grama*	0 – 25	0 – 25
10	ACHY	Indian Ricegrass	11 – 18	11 – 18
11	2GRAM	Other Grasses	18 – 28	18 - 28

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
12	HYRI PYRRO	Pingue Goldenweed spp.	11 – 18	11 – 18
13	2FA 2FP	Annual Forbs Perennial Forbs	11 – 18	11 – 18

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
14	ARTR4	Mountain Big Sagebrush	35 – 70	35 – 70
15	JUMO	Oneseed Juniper	0 – 11	0 – 11
16	KRLA2 ATCA2	Winterfat Fourwing Saltbush	18 – 53	18 – 53
17	GUSA2	Broom Snakeweed	11 – 35	11 – 35

Plant Type - Lichen

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Moss

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Microbiotic Crusts

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Other species include: muhly spp., wolftail, threeawn spp., rubber rabbitbrush, sunflowers, foxtail barley, wooly Indianwheat, silverleaf nightshade, annual brome, daisies, Rocky Mountain beeplant, threadleaf groundsel, locoweed spp., penstemon, asters, gilias and globemallow spp.

Plant Growth Curves

Growth Curve ID **0007NM**

Growth Curve Name: **HCPC**

Growth Curve Description: **A mixed mid-grass and shrubland with a minor forb component.**

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	3	5	10	10	25	30	12	5	0	0

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for Wildlife:

This site provides habitats, which support a resident animal community that is characterized by pronghorn antelope, coyote, white-tailed jackrabbit, rock mouse, rock squirrel and prairie lark. Raptors will forage over these sites.

Antelope and elk will make seasonal use of these sites.

Hydrology Functions:

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

Hydrologic Interpretations	
Soil Series	Hydrologic Group
Pescado	D
Petaca	D
Prieta	D

Recreational Uses:

This site has value for nature observation, photography, hiking and hunting. The canyon and mountain setting enhance its beauty.

Wood Products:

This site has no significant potential for wood production.

Other Products:

Grazing:

Approximately 75 percent of the vegetation produced on this site come from plants producing forage suitable for grazing or browsing. Improper grazing distribution, which leads to a deterioration of the potential plant community, may be a problem on this site due to the amount of rock outcrop. Deterioration of the potential plant community is indicated by a decrease in such species as sideoats grama, western wheatgrass, needlegrass, muttongrass, pinegrass, winterfat and fourwing saltbush. Species that increase include blue grama, galleta, threeawn, broom snakeweed and big sagebrush. A planned grazing system with periodic deferment is best to maintain the desirable balance between plant species and to maintain high productivity.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	6.9 – 9.2
75 – 51	8.9 – 13.8
50 – 26	13.5 – 27.5
25 – 0	27.5+

Plant Part	Code	Species Preference	Code
Stems	**S**	**None Selected**	**NS**
Leaves	**L**	**Preferred**	**P**
Flowers	**F**	**Desirable**	**D**
Fruits/Seeds	**F/S**	**Undesirable**	**U**
Entire Plant	**EP**	**Not Consumed**	**NC**
Underground Parts	**UP**	**Emergency**	**E**
		Toxic	**T**

Plant Preference by Animal Kind:

Animal Kind: Livestock
Animal Type: Cattle

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Western Wheatgrass	Pascopyrum smithii	EP	D	D	P	P	P	D	D	D	D	D	D	D
Sideoats Grama	Bouteloua curtipendula	EP	P	P	P	P	P	P	P	P	P	P	P	P
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	P	P	P	P	P	P	P
Muttongrass	Poa fendleriana	EP	D	D	D	D	D	D	D	D	D	D	D	D
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	D	D	D	D	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
Fourwing Saltbush	Atriplex canescens	L/S	P	P	P	P	P	D	D	D	D	D	D	P
Winterfat	Krascheninnikovia lanata	L/S	D	D	P	P	P	P	P	P	D	D	D	D

Animal Kind: Livestock
Animal Type: Sheep

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	D	D	D	D	D	D	P
Wooly Indianwheat	Plantago purshii	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Muttongrass	Poa fendleriana	EP	U	U	D	D	D	U	U	U	U	U	U	U
Blue Grama	Bouteloua gracilis	EP	D	D	D	D	P	P	P	P	P	D	D	D
Sideoats Grama	Bouteloua curtipendula	EP	D	D	D	D	P	P	P	P	P	D	D	D
Winterfat	Krascheninnikovia lanata	L/S	P	P	P	P	P	P	P	P	P	P	P	P
Forbs	Various	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S

SUPPORTING INFORMATION

Associated sites:

Site Name	Site ID	Site Narrative

Similar sites:

Site Name	Site ID	Site Narrative

State Correlation:

This site has been correlated with the following sites: _____

Inventory Data References:

Data Source	# of Records	Sample Period	State	County

Type Locality:

State: **New Mexico**

County: **Rio Arriba, Taos**

Latitude: _____

Longitude: _____

Township: _____

Range: _____

Section: _____

Is the type locality sensitive? **Yes** ☐ **No** ☐

General Legal Description: _____

Relationship to Other Established Classifications:

Other References:

Data collection for this site was done in conjunction with the progressive soil surveys within the New Mexico and Arizona Plateaus and Mesas 36 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: Taos

Characteristic Soils Are:	
Petaca	Prieta
Pescado	
Other Soils included are:	

Site Description Approval:

Author	Date	Approval	Date
Don Sylvester		Don Sylvester	

Site Description Revision:

Author	Date	Approval	Date
Elizabeth Wright	08/08/02	George Chavez	09/11/02